Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) ~~A~~ An aqueous-based photothermographic composition for providing a black-and-white image, said composition comprising predominantly a hydrophilic or water-dispersible polymeric latex binder, and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions that includes a silver salt of a compound containing an imino group, an ascorbic acid or reductone reducing agent for said non-photosensitive source of reducible silver ions, and

said composition further comprising a polycarboxylic acid that has a pKa of less than 4.5.

2. (original) The thermally developable composition of claim 1 wherein said polycarboxylic acid is represented by the following Structure (I):

HOOC-Q-COOH

(I)

wherein Q represents a direct bond, a phenylene linking group, or a substituted or unsubstituted aliphatic linking group consisting of 1 or 2 carbon atoms.

3. (original) The thermally developable composition of claim 2 wherein Q represents an aliphatic linking group consisting of 2 carbon atoms and at least one of said carbon atoms is substituted with a hydroxy, carboxy, or carboxyalkyl group.

4. (original) The thermally developable composition of claim 1 wherein said polycarboxylic acid is present in an amount of from about 0.05 to about 1 mol/mol of silver halide.

5. (original) The thermally developable composition of claim 1 wherein said photosensitive silver halide comprises one or more preformed photosensitive silver halides that are provided predominantly as tabular grains.

6. (original) The thermally developable composition of claim 1 wherein said photosensitive silver halide grains comprise silver bromide or silver iodobromide grains, and wherein said binder is gelatin, a gelatin derivative, a cellulosic material, or a poly(vinyl alcohol), said non-photosensitive source of reducible silver ions includes a silver salt of benzotriazole, said reducing agent for said reducible silver ions is an ascorbic acid reducing agent, and

said polycarboxylic acid is citric acid, tricarballylic acid, 1,2,3,4-butanetetracarboxylic acid, tartaric acid, succinic acid, phthalic acid, hemimellitic acid, oxalic acid, malonic acid, malic acid, or butyl malonic acid, or mixtures of two or more of these acids.

7. (currently amended) ~~A~~ An aqueous-based black-and-white photothermographic material comprising a support and having on at least one side thereon one or more thermally developable imaging layers each comprising predominantly a hydrophilic or water-dispersible polymer latex binder, and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions that includes a silver salt of a compound containing an imino group, an ascorbic acid or reductone reducing agent for said non-photosensitive reducible silver ions, and optionally an outermost protective layer disposed over said one or more thermally developable imaging layers, and

wherein the outermost surface of said one or more thermally developable imaging layers, or the outermost surface of said protective layer if present, has a surface pH of less than 7, and said one or more thermally developable imaging layers further comprise a polycarboxylic acid that has a pKa of less than 4.5.

8. (original) The photothermographic material of claim 7 wherein said polycarboxylic acid is represented by the following Structure (I):

HOOC-Q-COOH

(I)

wherein Q represents a direct bond, a phenylene linking group, or a substituted or unsubstituted aliphatic linking group consisting of 1 or 2 carbon atoms.

9. (original) The photothermographic material of claim 8 wherein Q represents an aliphatic linking group consisting of 1 or 2 carbon atoms, and at least one carbon atom is substituted with one or more carboxy, alkylcarboxy, hydroxy, carboxyalkyl, or alkyl groups.

10. (original) The photothermographic material of claim 8 wherein Q represents an aliphatic linking group consisting of 2 carbon atoms, and at least one of said carbon atoms is substituted with a hydroxy, carboxy, or carboxyalkyl group.

11. (original) The photothermographic material of claim 7 wherein said polycarboxylic acid is one or more of the following compounds:

3-thiophenemalonic acid, allylmalonic acid, benzylmalonic acid, 1,2,3,4-butanetetracarboxylic acid, 3-butene-1,2,3-tricarboxylic acid, butyl malonic acid, D-(–)-citramalic acid, L-(+)-citramalic acid, citric acid, 1,1-cyclobutanedicarboxylic acid, 1,1-cyclopropanedicarboxylic acid, dihydroxymalonic acid, dimethylmalonic acid, 1,1,2-ethanetricarboxylic acid, hemimellitic acid, homoisocitric acid, hydroxycitric acid, 2-hydroxy-2-isopropylsuccinic acid, 1-indanylmalonic acid, isocitric acid, ketomalonic acid monohydrate, D-malic acid, L-malic acid, D,L-malic acid, malonic acid, meso-tartaric acid, meso-tartaric acid monohydrate, D,L-2-methylcitric acid, methylmalonic acid, 2-methylpropane-tricarboxylic acid, D,L-methyltartronic acid, oxalic acid, phenylmalonic acid, phthalic acid, succinic acid, D-(–)-tartaric acid, L-(+)-tartaric acid, D,L-tartaric acid, D,L-tartaric acid hydrate, tartronic acid, D,L-threo-3-isopropylmalic acid, and tricarballylic acid.

12. (original) The photothermographic material of claim 7 wherein said polycarboxylic acid is citric acid, tricarballylic acid, 1,2,3,4-butane-

tetracarboxylic acid, tartaric acid, succinic acid, phthalic acid, hemimellitic acid, oxalic acid, malonic acid, malic acid, or butyl malonic acid, or mixtures of two or more of these acids.

13. (original) The photothermographic material of claim 7 wherein said non-photosensitive source of reducible silver ions includes a silver salt of benzotriazole or a substituted derivative thereof, or mixtures of such silver salts.

14. (cancelled)

15. (currently amended) The photothermographic material of claim ~~14~~ 7 wherein said hydrophilic binder is a gelatin or gelatin derivative, a poly(vinyl alcohol), or a cellulosic material.

16. (original) The photothermographic material of claim 7 wherein the photosensitive silver halide comprises one or more preformed photosensitive silver halides that are provided predominantly as tabular grains.

17. (original) The photothermographic material of claim 7 wherein said polycarboxylic acid is present in an amount of from about 0.05 to about 1 mol/mol of silver halide.

18. (original) The photothermographic material of claim 7 comprising one or more thermally developable layers on both sides of said support, wherein the thermally developable layers on opposing sides of said support can have the same or different composition.

19. (original) The photothermographic material of claim 18 comprising a polycarboxylic acid that has a pKa of less than 4 in said one or more thermally developable imaging layers on both sides of said support.

20. (currently amended) ~~A~~ An aqueous-based black-and-white aqueous-based photothermographic material that comprises a transparent support having on at least one side thereof:

a) one or more thermally developable imaging layers each comprising predominantly a hydrophilic binder that is gelatin, a gelatin derivative, a poly(vinyl alcohol), or a cellulosic material, or is a water-dispersible polymeric latex, and in reactive association,

a preformed photosensitive silver bromide, silver iodobromide, or a mixture thereof, provided predominantly as tabular grains,

a non-photosensitive source of reducible silver ions that includes one or more organic silver salts at least one of which is predominantly a silver salt of benzotriazole,

a reducing composition for said non-photosensitive source of reducible silver ions that includes an ascorbic acid, and

b) optionally, an outermost protective layer disposed over said one or more thermally developable imaging layers, and

wherein said outermost surface of said one or more thermally developable imaging layers, or the outermost surface of said protective layer if present, has a surface pH of from about 3 to about 5.5 and said one or more thermally developable imaging layers further comprise citric acid, tricarballylic acid, 1,2,3,4-butanetetracarboxylic acid, tartaric acid, succinic acid, phthalic acid, hemimellitic acid, oxalic acid, malonic acid, malic acid, or butyl malonic acid, or mixtures of two or more of these acids, in an amount of from about 0.05 to about 1 mol/mol of silver halide.

21. (original) The photothermographic material of claim 20 wherein said hydrophilic binder is gelatin or a gelatin derivative, silver benzotriazole is the only source of reducible silver ions, and said one or more thermally developable imaging layers further comprise citric acid, tricarballylic acid, or a mixture thereof.

22. (original) The photothermographic material of claim 20 having an antihalation layer or a layer containing an acutance dye on one or both sides of said support.

23. (currently amended) ~~A~~ An aqueous-based photothermographic material comprising a support having on a frontside thereof,

a) one or more frontside thermally developable imaging layers each comprising predominantly a hydrophilic polymer binder or water-dispersible polymer latex binder, and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions that includes a silver salt of a compound containing an imino group, an ascorbic acid or reductone as a reducing agent for said non-photosensitive source reducible silver ions, and

said material comprising on the backside of said support, one or more backside thermally developable imaging layers each comprising predominantly a hydrophilic polymer binder or a water-dispersible polymer latex binder, and in reactive association, a photosensitive silver halide, a non-photosensitive source of reducible silver ions that includes a silver salt of a compound containing an imino group, and an ascorbic acid or reductone as a reducing agent for said non-photosensitive source reducible silver ions, and

b) optionally, an outermost protective layer disposed over said one or more thermally developable imaging layers, and

wherein said one or more thermally developable imaging layers, or said one or more protective layers if present, on both sides of said support have the same or different composition, and

said material further comprising an polycarboxylic acid that has a pKa of less than 4.5.

24. (original) The photothermographic material of claim 23 wherein said polycarboxylic acid is represented by the following Structure (I):

HOOC-Q-COOH

(I)

wherein Q represents a direct bond, a phenylene linking group, or a substituted or unsubstituted aliphatic linking group consisting of 1 or 2 carbon atoms.

25. (original) The photothermographic material of claim 23, wherein said outermost surface of said imaging layer or the outermost surface of said one or more protective layers if present, on both sides of said support has a surface pH of from about 3 to about 5.5, and said one or more frontside and backside thermally developable imaging layers further comprise citric acid, tricarballylic acid, 1,2,3,4-butanetetracarboxylic acid, tartaric acid, succinic acid, phthalic acid, hemimellitic acid, oxalic acid, malonic acid, malic acid, or butyl malonic acid, or mixtures of two or more of these acids in an amount of from about 0.05 to about 1 mol/mol of silver halide.

26. (original) A method of forming a visible image comprising:

A) imagewise exposing the photothermographic material of claim 7 to form a latent image,

B) simultaneously or sequentially, heating said exposed photothermographic material to develop said latent image into a visible image.

27. (original) The method of claim 26 wherein said thermally developable material comprises a transparent support, and said image-forming method further comprises:

C) positioning said exposed and thermally-developed material with the visible image therein between a source of imaging radiation and an imageable material that is sensitive to said imaging radiation, and

D) exposing said imageable material to said imaging radiation through the visible image in said exposed and thermally-developed material to provide an image in said imageable material.

28. (original) The method of claim 26 wherein said imagewise exposing is carried out using visible or X-radiation.

29. (original) The method of claim 26 wherein said thermally developable material is arranged in association with one or more phosphor intensifying screens during imaging.

30. (original) The method of claim 26 wherein said exposed photothermographic material is used for medical diagnosis.

31. (original) A method of forming a visible image comprising:

A) imagewise exposing the photothermographic material of claim 23 to form a latent image,

B) simultaneously or sequentially, heating said exposed photothermographic material to develop said latent image into a visible image.

32. (original) An imaging assembly comprising the photothermographic material of claim 7 that is arranged in association with one or more phosphor intensifying screens.

33. (original) A method of forming a black-and-white image comprising exposing the imaging assembly of claim 32 to X-radiation.

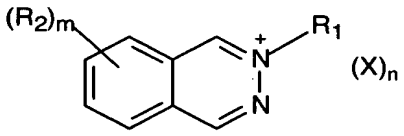
34. (new) The material of claim 7 further comprising in one or more of said thermally developable imaging layers, a toner that is:

a substituted or unsubstituted mercaptotriazole;

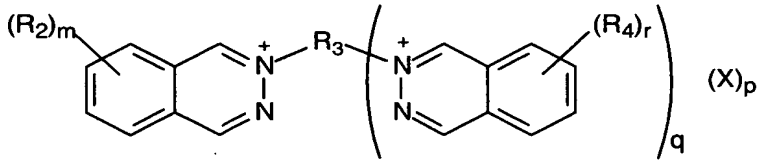
a triazine thione compound;

a heterocyclic disulfide compound;

a phthalazine compound represented by the following Structure III or IV:



(III)



(IV)

wherein R_1 is an alkyl, cycloalkyl, alkenyl, or aryl group, R_2 and R_4 independently represent monovalent substituents, R_3 is a multivalent organic linking group, m is 0 or an integer up to 4, r is 0 or an integer of up to 4, and when m or r is greater than or equal to 2, a plurality of R_2 or a plurality of R_4 groups may be the same or different and when a plurality of R_2 groups or a plurality of R_4 groups are close to each other, they may form a fused aliphatic, aromatic, or heterocyclic ring, q is 1, 2, or 3, provided that when q is 2 or 3, the R_4 groups can be the same or different on the multiple phthalazine moieties, X is an anion, and n and p are 0 or an integer of up to 4 and represent sufficient counterions necessary to provide a net charge of zero; or

a combination thereof.

35. (new) The material of claim 7 wherein said polycarboxylic acid is citric acid, tricarballylic acid, 1,2,3,4-butanetetracarboxylic acid, tartaric acid, succinic acid, hemimellitic acid, oxalic acid, malonic acid, malic acid, or butyl malonic acid, or mixtures of two or more of these acids